

Docket Item #11  
MASTER Plan AMENDMENT#2006-0001

Planning Commission Meeting  
March 9, 2006

**ISSUE:** Consideration of a request for an amendment to the City's Master Plan, adopting the Four Mile Run Restoration Master Plan as a chapter of the Master Plan.

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**STAFF RECOMMENDATION:**

That the Planning Commission, by resolution, recommend approval of the Four Mile Run Restoration Master Plan as an amendment to the City's Master Plan, including the revised language of the two text boxes located on pages 19 and 48 of the Four Mile Run Restoration Master Plan dated January 2006.

**BACKGROUND:**

*No changes are proposed to existing land use designations or zoning as part of this amendment to the City's Master Plan.*

The Four Mile Run Restoration Master Plan (Master Plan) is a project to restore roughly two miles of a highly degraded and impacted stream in Northern Virginia. The stream, Four Mile Run, is a 9-mile long stream located in a highly urbanized area that includes portions of Arlington County and the City of Alexandria. The watershed also includes Fairfax County and the City of Falls Church. The lower portion of Four Mile Run, from I-395 at the upstream end to the mouth at Ronald Reagan Washington National Airport, is contained in a hardened flood channel and marks a rough boundary between Arlington County and the City of Alexandria. This channel was constructed in the 1970's by the U.S. Army Corps of Engineers to provide flood protection to Alexandria and Arlington after Hurricane Agnes severely flooded this area. It is this 2.3-mile hardened flood control channel, or levee corridor, that is the focus of the Restoration Master Plan.

The Four Mile Run Restoration Master Plan is a long range plan, which could take up to 20-30 years to implement. The magnitude of this project, including its \$261.0 million cost (excluding \$94.0 million for undergrounding of powerlines) will result in this plan being implemented over a number of decades. Implementation will be highly dependent on the availability of substantial federal and state grants as well as joint local funding by the City of Alexandria and Arlington County. The adoption of this plan does not commit the City of Alexandria, or Arlington County, to fund this Master Plan but provides a roadmap through the guiding principles and conceptual design options to use as opportunities to gain funding, as funding possibilities arise, and as redevelopment occurs within the corridor as the corridor is restored. Funding for improvements within the corridor will most likely be phased over a long period of time, and due to the joint effort of both the City of Alexandria and Arlington County, shared between both jurisdictions. This Master Plan provides guidance for stream restoration, future recreation, the placement of new public infrastructure and the replacement of existing infrastructure, once it has reached its useful life. The Master Plan discusses a variety of funding sources and strategies, ranging from local funds to state/federal grants and matching funds to public/private partnerships. Funding for all elements of the Master Plan are subject to competition in the City's Capital Improvement Program (CIP) with all other City projects for limited public funds. The current City CIP is already not fully funding all City capital facility and infrastructure needs, so the competition for

new funding will be present for the foreseeable future. There is potential for significant leveraged federal funding for the flood control and environmental restoration elements of the Master Plan, through the City and County’s partnership with the U.S. Army Corps of Engineers.

**HISTORY**

In 2000, a joint effort between the City of Alexandria and Arlington County, through Congressman James P. Moran’s office, secured an EPA grant of \$1 million dollars in funding for a joint Arlington-Alexandria study to include the “demonstration of environmental improvements to Four Mile Run”. Subsequently, the Congressman secured appropriations for the U.S. Army Corps of Engineers to be actively involved in the project. Partnering with Arlington County, the U.S. Army Corps of Engineers (USACE), and the Northern Virginia Regional Commission (NVRC), the City of Alexandria began a 6 year process to develop the Four Mile Run Restoration Master Plan (Master Plan). The City-County Agency Coordinating Group (ACG) was formed in 2002. In addition, in early summer 2003, an eighteen member citizen Joint Task Force (JTF) was formed with citizens from both jurisdictions. Members of the JTF were appointed by the City Manager and County Manager of each jurisdiction.

**Alexandria JTF Members**

**Arlington JTF Members**

Judy Noritake, Alexandria Park & Rec Commission, JTF Co-Chair	Neal Sigmon, Arlington County Park & Rec Commission, JTF Co-Chair
Jesse Jennings, Alexandria Planning Commission	Carrie Johnson, Arlington County Planning Commission
Ripley Forbes, Alexandria Park & Rec Commission	Mike Steger, Arlington County Park & Rec Commission
Victor Addison, Jr. (reassigned), Alexandria Environmental Policy Commission	Liz Birnbaum, Arlington County Environment and Energy Conservation Commission
Joe McCoy, Alexandria Citizen Representative	Eric Murdock, Arlington County Transportation Commission
LaVerne Warlick, Lynhaven Civic Association (Alexandria)	Ted Saks, Aurora Highlands Civic Association (Arlington)
Betty King, Hume Springs Civic Association (Alexandria)	Whitney Long, Arlington Ridge Civic Association (Arlington)
Kevin Beekman, Alexandria Citizen Representative	John Fourcade, Long Branch Creek Civic Association (Arlington)
Claire Eberwein, Representative from Rep. Jim Moran’s Office	Dan Kohlhepp, Crescent Resources

The JTF was charged with gathering community information and input and was the main vehicle for community involvement during the study process. The JTF hosted meetings, conducted fact-finding discussions and initiated additional public involvement platforms. In addition, the JTF coordinated

the public awareness effort regarding the study. The JTF developed ground rules, operating procedures and methods to achieve its charge.

The JTF made recommendations that pertained to the study and the project to the Agency Coordination Group (ACG). The ACG was comprised of City and County staff from the Departments of Recreation, Parks and Cultural Activities, Planning and Zoning, and Transportation and Environmental Services, the U.S. Army Corps of Engineers staff, a representative from the Northern Virginia Regional Commission (NVRC), and other specific agencies necessary to review the JTF's recommendations. The ACG reviewed the JTF's recommendations and information gathered in the course of the study and project. In 2004, the ACG selected a consultant team spearheaded by Rhodeside and Harwell, Inc. and included CH2M Hill, Biohabitates, Inc. and Waterscapes, Inc., which provided the professional and support services to develop the Master Plan. This final report includes, among other points, the JTF's recommendations and any ACG comments on them. The final Master Plan document was reviewed by the relevant advisory commissions in each jurisdiction and is now under consideration by the Alexandria Planning Commission and the Arlington County Planning Commission, for recommendation of approval to the Alexandria City Council, and Arlington County Board to be adopted and included their respective Comprehensive Master Plans. *(Attachment 1, Park and Recreation Commission Letter of Recommendation & Attachment 2, Environmental Policy Committee Letter of Recommendation)*

The public process included a joint kick-off press event (July 7, 2003), monthly JTF meetings, monthly ACG Meetings, a very well-attended community visioning session (February 5, 2005), roundtable discussions, two update presentations to City Council and four community open houses. All comments received throughout the process were captured and posted on the project's website that is maintained by the NVRC: <http://www.novaregion.org/history.htm>. In addition, the NVRC website offers current and historical information about Four Mile Run and the master planning process, along with upcoming meeting announcements. An email distribution list was created to notify people about community meetings and other events related to Four Mile Run. ACG staff attended civic association meetings and other community events, and wrote newsletter articles (including FYI Alexandria) to promote awareness of and participation in the Four Mile Run effort. Included in the broader effort underway was the focus on the watershed as a whole. In early 2004, Alexandria and Arlington executed a formal cost-sharing agreement with the USACE for a watershed-wide Four Mile Run restoration Feasibility Study, which will eventually incorporate the Master Plan for the restoration of the levee corridor as well as analyses and recommendations for restoration projects throughout the watershed. Projects identified in this study, including components of the Master Plan, will be eligible for federal construction cost share funds. The Master Plan can be viewed on-line at the website listed above. *(Attachment 3, U.S. Army Corps of Engineers Letter of Support)*

## **FLOOD PROTECTION**

As part of the Four Mile Run Master Plan process, the NVRC, in coordination with the U.S. Army Corps of Engineers, conducted an updated hydraulics and hydrology analysis of the channel. This analysis was undertaken to establish the limits of improvements within the channel that could be

provided without negatively impacting the channel's ability to carry the flow from a 100-year flood event. The 100-year flood event is defined as the 1 percent probability of a flood event occurring during any given year.

As a result of this analysis, the estimate of the flow of water which constitutes a 100-year event in Four Mile Run could be reduced by about 30 percent, from 22,500 cubic feet per second to 15,970 cubic feet per second. In effect, based on knowledge and data available today, we now can state that when the U.S. Army Corps of Engineers designed the Four Mile Run project in the 70's, the project's flood handling capacity calculated was more than was necessary. This reduction in the flow is based on the longer historical record data available today. Based on this new flow, the Flood Insurance Rate Maps (FIRM) for the City of Alexandria and Arlington County will be adjusted by the Federal Emergency Management Agency (FEMA). This will result in some properties that are currently mapped in the 100-year flood plain being removed from that designation. This means that those properties will no longer be required by federal law to purchase flood insurance if they hold a federally backed mortgage. If those properties choose to continue with flood insurance coverage, they will be able to purchase the insurance at a reduced rate. While these properties will not be technically in the 100-year floodplain, they may still be subject to flooding, as all calculation based upon statistical models tract project probabilities. City staff will be implementing a public outreach program with FEMA to work with all of these properties and discuss their risk of flooding and options for insurance.

Part of the hydraulics and hydrology analysis evaluated the impact of the proposed Master Plan improvements on the flood carrying capacity of Four Mile Run. These improvements do decrease the capacity of the channel slightly, and increase the area and depth of the 100-year flood plain. However, this increased area is small and is less than the area of the previous 100-year floodplain, based on the flow value of 22,500 cubic feet per second. The implementation phase of the Master Plan will evaluate ways to mitigate the risk of flooding to this area including measures such as constructing berms.

Alexandria and Arlington County staff are recommending modifying the language included in two text boxes in the Master Plan that relate to the 100-year storm and flooding. These text boxes appear on pages 19 and 48 of the Master Plan. Staff and the Agency Coordination Group believe that the proposed changes both clarify and expand on the discussion regarding the flood protection. The proposed change to the text box on page 19 clarifies that the new flow of water calculated to constitute the 100-year flood event is based on a longer period of record regarding flows in the channel, leading to the prediction of a smaller magnitude event. The proposed change to the text box on page 48 clarifies that while the proposed Master Plan improvements do raise the flood elevation in the model performed by the Army Corps, the model will be refined as each phase of the plan is implemented. The implementation of these improvements will result in changes in topography that may be mitigate the increase in the flood levels. *(See Attachment 4, Master Plan Text Boxes Revised Language)*

## **FOUR MILE RUN RESTORATION MASTER PLAN**

The purpose of the Master Plan is to provide a framework and vision for future changes in the Four Mile Run corridor. The Master Plan seeks to direct future public and private land use decisions and investment in the area in a manner that both promotes environmental restoration of the stream and encourages access and connections to the stream and the adjacent jurisdictions. The Master Plan envisions that the Four Mile Run corridor will become a model of urban ecological restoration and will help to overcome the legacy of past decision-making related to land uses and the siting of infrastructure that have contributed to the sense of isolation and created a barrier between the stream and the adjacent neighborhoods in both jurisdictions.

Through the sensitive and sustainable integration of natural areas with active urban nodes, the Four Mile Run corridor will be a place where the communities of Alexandria and Arlington County can gather, recreate and celebrate a shared waterfront legacy. Guiding Principles to achieve this goal were developed, based on community and governmental input, which include eight key elements:

- (1) ***Flood protection.*** Maintain a minimum 100 year event flood protection; examine the current extent of the 100 year flood-prone area; and explore flood protection measures for areas not currently protected.
- (2) ***Environment.*** Create a “dynamically stable stream channel” using natural stream channel design techniques; improve corridor habitat and ecology to support native terrestrial and aquatic plant and animal species; and develop upstream strategies to improve water quality in the stream and the environmental quality and long-term viability of a restored levee corridor.
- (3) ***Aesthetics and design.*** Improve overall corridor aesthetics and viewshed opportunities; encourage urban design that develops the corridor’s aesthetics and reflects the excitement of the watershed citizenry for this resource; incorporate “green design” principles for all design and development activities within and adjacent to the corridor; and incorporate innovative and creative urban design and watershed solutions.
- (4) ***Recreation and urban life.*** Enhance existing recreational opportunities; create new recreational opportunities that afford interaction with the waters of Four Mile Run; develop urban life opportunities along the Four Mile Run corridor; and encourage appropriate siting of recreational facilities in the context of the overall project goals.
- (5) ***Integration and balance.*** Connect the project to the efforts underway in the watershed to improve the water quality of Four Mile Run; integrate the corridor with surrounding communities and proposed adjacent urban development efforts; and coordinate with other ongoing planning activities such as the Four TMDL/Implementation Plan (which strives to create a cleaner Four Mile Run through pollutant reduction) the local Chesapeake Bay Preservation Act programs, the Potomac Tributary Strategies, affordable housing initiative, recent master planning efforts such as the Arlandria Neighborhood Plan and

similar planning efforts in Arlington County, such as the Shirlington, and other planning and economic development activities.

- (6) ***Access and connectivity.*** Create a place for people to reconnect with water and nature within an urban context; increase pedestrian and bicycle access and amenities; ensure that Four Mile Run is accessible to all who wish to use it; increase connectivity between the two communities; and enhance the corridor's effectiveness as a non-motorized and mass transit corridor.
- (7) ***Education and interaction.*** Provide interpretive opportunities to educate and inform the public about the stream corridor; and stress the interrelatedness of positive individual, institutional, and political actions and behavior changes with improved water quality and habitat in the corridor.
- (8) ***The planning horizon.*** Think big-create a plan that provides the parameters for change over time as opportunities become available; and provide a mix of short-term discrete improvements blended with long-term large-scale corridor changes.

The Master Plan describes the characteristics of the 2.3 mile corridor study area as it exists today (Chapter 2), the process used to develop the Master Plan (Chapter 3), the elements of the Master Plan Vision (Chapter 4), the design language to create the vision (Chapter5), and the range of implementation strategies and preliminary cost assessments to achieve the vision (Chapter 6).

## **THE VISION**

The Master Plan for Four Mile Run transforms the corridor by incorporating improvements in environmental quality, open space amenities, transportation options and improving the overall quality of urban life within the near-stream area.

### ***Highlights of the Vision:***

#### **A. Environment**

The Master Plan emphasizes the “greening” of the Four Mile Run corridor. Flood protection remains the most important element, but through channel restoration and stabilization, Four Mile Run becomes a model of environmental responsibility with a healthy ecosystem.

Hydrology and flood control are the core of the plan. The ecological character of the corridor will be restored with the creation of new habitat area and significant improvements to existing habitat areas. Comprehensive stormwater management techniques will be incorporated throughout the corridor to reduce, retain, and filter stormwater such as daylighting and bioretention, before it reaches the stream. Litter control was identified as a major concern within the corridor. The Master Plan identifies several stormwater management facilities that can be installed to help control trash entering the steam. Green Building technologies will be incorporated in development as redevelopment occurs. The inclusion of a small, neighborhood-

serving recycling station within the corridor will facilitate educational opportunities to teach community awareness and encourage participation at the local level.

## **B. Public Spaces**

The Master Plan envisions a vibrant public realm that functions as a destination for nearby residents and visitors. It recognizes and addresses the importance of accessibility for all. The network of trails and pedestrian bridges provides significantly improved access to almost all parts of the corridor and safe connections to neighborhoods in Alexandria and Arlington. A commuter trail is maintained through the corridor with the addition of a recreational, or community trail on the south side of the Run. There are informal trails, ramps, and stream crossings.

Pedestrian/cyclist bridges will connect Alexandria and Arlington together, such as a proposed non-vehicular bridge spanning Four Mile Run between S. Eads Street and Commonwealth Avenue. Promenades and plazas will attract activity and visitors, and the open lawn or “green spaces”, sports facilities and public art will add character, meaning and direction to the corridor. In particular, art that addresses the history and ecology of the area and a relationship to the space is strongly encouraged as part of this Master Plan. It is envisioned that the main activity centers along Four Mile Run in Alexandria would be located at Potomac Yard, at Mt. Vernon Avenue and the Four Mile Run Park and adjacent commercial properties in Arlandria, and along West Glebe Road near the boundary with Arlington County. Conceptual renderings of both the Potomac Yard and Mt. Vernon Avenue areas are included in the draft Master Plan (see pages 44-46). These areas would provide opportunities to interact with the stream along with active and passive recreational opportunities for users of all ages, and be integrated into the urban fabric. The balance of land along Four Mile Run is envisioned as being in a more natural state, with environmental restoration of the stream banks where possible and appropriate. Included in this Master Plan is a study to underground the power lines within the corridor. While the Master Plan considers this a desirable long-term outcome, the vision also accommodates above-ground power lines.

The Master Plan identifies the need to, at a minimum, maintain the current recreational facilities, specifically, the current number of fields. The Master Plan acknowledges that future realignment of the Four Mile Run multi-purpose field and relocation of the ball field toward Mt. Vernon Avenue could open the potential for wetland enhancement. These field renovations would require adequate timing and sequence within the City’s overall field renovation schedule, to ensure that play time continues in a favorable manner. This Master Plan does not change the current plans for the renovation of the Four Mile Run multi-purpose field, or current timeline associated with the field development.

Maintenance for the enhanced Four Mile Run will be incorporated in both the existing inter-jurisdictional agreements, and within the existing resources. The Master Plan anticipates quality, sustainable restoration, with native plant materials and species appropriate to the conditions of the restored channel.

### **C. Built Features**

The Master Plan envisions a built environment that both acknowledges and respects the stream and contributes positively to the public realm. The highest quality of form and materials that supports the Master Plan vision should be used in the design approach. Any new development within the corridor should engage, and directly face and turn its face to, the stream. The Master Plan recognizes the importance of providing affordable housing to ensure that the surrounding community maintains its diverse character, and that the restored Four Mile Run is a community asset that serves all. As new development occurs within the corridor, the Master Plan promotes the City's adopted affordable housing policy. Transportation options within the Master Plan encourage change in the way the corridor currently functions, as a place where people pass through. As opportunities present themselves, revised intersections and improvements should be considered to facilitate compatibility with the restored corridor. The transportation improvements proposed in the Master Plan will require future studies, additional information and community outreach to assess the viability of the individual project. While not actively seeking funding for infrastructure improvements, until such time replacement is deemed necessary, the Master Plan identifies areas that could benefit from future design considerations.

## **THE IMPLEMENTATION OF THE MASTER PLAN**

### *Next Steps:*

#### **A. Demonstration Project**

As part of the funding for the master planning effort through the EPA grant, a demonstration project is proposed that will implement a representative segment of the Master Plan. This is the only current priority within the Master Plan to be implemented at this time.

Funding for this project is set aside in the amount of \$3.3 million dollars, \$300,000 from the initial grant and additional matched funding from a federal State and Tribal Assistance Grant (STAG) grant (\$1.5 million), with both jurisdictions contributing to the match (\$600,000 from each jurisdiction) Funding for the pedestrian/bicycle bridge will be dependent on securing funds through other grant opportunities, such as state and federal transportation grants. The process for identifying the preferred project is grounded in the hydrologic need to limit initial construction to the tidal portion of the corridor from Mount Vernon Avenue to Potomac Yard, where the flow regimes are more stable. Both the ACG and the JTF identified five options within the reach and evaluated the potential for each project based on the following criteria:

- A project that ties together Arlington and Alexandria's communities
- A project that demonstrates visible environmental, engineering and design improvements
- The "Aha!" factor: a visible project that will be noted as a significant, positive change for the corridor
- A project that will be sustainable, involving limited risks of high water caused failure (or "blow-out") of the in-stream restoration work
- A project that does not require private land acquisition at this time
- A project that can work with the existing transmission lines in place

Based on the criteria and funding, the following components outline the proposed demonstration project:

- The removal of the gabions (ie: wire cages filled with crushed stone that are often stacked and used to reduce erosion along steep slopes and streambanks) on both sides of the stream
- The restoration of stream banks on both sides of the stream
- Creation of a tidal bar
- Litter control
- Information box (signage explaining the project)
- The construction of the Commonwealth Avenue pedestrian/bicyclist bridge (with additional funds to be secured through TEA-21 grants)

### **B. The U.S. Army Corps of Engineers' Feasibility Study**

In addition to the Master Plan process, there is a broader watershed scale effort in partnership with the U.S. Army Corps of Engineers (USACE). The USACE joined with Arlington and Alexandria to conduct a feasibility study for environmental enhancements and flood protection. The study will become a road map for enhancing water quality, ecology, and sustainability throughout the Four Mile Run watershed, and specifically in the levee corridor.

### **C. Coordination and Management**

There are a variety of management structures highlighted within Chapter 6 of the Master Plan. As projects come forward to be implemented, coordination and management styles will be incorporated into the implementation process.

### **FISCAL IMPACT**

The Four Mile Run Restoration Master Plan is a long-term (ie, decades long) vision for the future of the lower Four Mile Run corridor and a framework for developing this vision. The adoption of this plan does not commit the City of Alexandria, or Arlington County, to implementation of this Master Plan but provides a roadmap through the guiding principles and conceptual design options to use as opportunities to gain funding, as funding possibilities arise, and as redevelopment occurs within the corridor as the corridor is restored. Implementation of any master plan (transportation, open space, etc.) is subject to future funding and resource allocations and priorities. The concept-level cost estimate for all of the components of the Master Plan for Areas 1-7 totals \$261 million, not including \$94.0 million for undergrounding the power lines, (see page 98, Order of Magnitude Cost Estimate). An overall cost breakdown of the major elements within the Master Plan and the possible funding sources describes the variety of funding opportunities for implementation (*Attachment 5, Snapshots of Costs for Major Elements*). There are additional possible private stormwater management costs of \$4.5 million dollars, if and when redevelopment occurs within the corridor. Of the \$261 million, 27% (with a possible additional 10% depending upon design) would be considered eligible for the U.S. Army Corps of Engineers cost sharing construction programs, most of which match at a very low

amount. Also, through aggressive grant research, additional funding of the future implementation costs could be secured through state and federal grants. For example for some of in-channel stream restoration elements (\$70.5 million) the U.S. Army Corps of Engineers could (subject to federal funding allocations) fund about \$14 million of the eligible costs.

Local funding which would generally be split 50%/50% between the City of Alexandria and Arlington County would need to be provided through each jurisdiction's Capital Improvement Program (CIP) planning and funding process. The merits of each phase of the Four Mile Run Restoration Project would need to compete for funding with other facility and infrastructure needs as both jurisdictions CIP's now are not in a position to be substantially expanded. In the City's case there is already desirable and needed CIP projects not funded in the current FY 2007-FY2012 proposed CIP. State and federal funding possibilities are also likely to be limited as those entities also have significant budget constraints.

The power line undergrounding study was commissioned as a direct result of the significant public discourse on the topic. In order to gain a better understanding of the feasibility of undergrounding these lines, both physically and financially, the ACG tasked RHI and CH2M Hill to investigate the feasibility of undergrounding the power lines. Through their work, they examined two separate technologies that have been used to underground similar power lines, Pipe-type, which is the tried-and-true technology that has been in existence since the early 1920s, and XLPE which has a shorter track record dating back only to the 1990s and in discussions with Dominion Virginia Power is met with some skepticism. Once the analysis was completed it was revealed that in the Four Mile Run situation the XLPE installation would be more expensive than a pipe-type installation. Since most engineering efforts are implemented through value-engineering judgments staff deemed it appropriate to use the less expensive and more readily accepted technology in our planning level cost estimate. The cost associated with the undergrounding using the pipe-type technology is \$94 million dollars. The range for the undergrounding is \$94 million on the low end and \$175 million on the high end. While undergrounding the power lines is desired by the community and technically feasible, the cost to do this work is exceptionally expensive and unlikely to be undertaken. If there is a need in the future for the infrastructure to be upgraded, these studies would be taken into consideration.

The Four Mile Run Restoration Master Plan is a long range plan, which could take up to 20-30 years to implement. Funding for these improvements will most likely be phased over a long period of time. The costs will be shared between both jurisdictions and will be dependent on substantial state and federal allocations. This Master Plan provides guidance on the placement of new public infrastructure and the replacement of existing infrastructure, once it has reached its useful life.

The Master Plan discusses a variety of funding sources and strategies, ranging from local funds to state/federal grants and matching funds to public/private partnerships. These will be explored in the next phase of the project. Funding for these and all capital projects are subject to competition among all City projects for limited public funds. There is potential for significant leveraged federal funding for the flood control and environmental restoration elements of the master plan.

## **CONSISTENCY WITH CITY COUNCIL STRATEGIC PLAN**

Of particular relevance to the Master Plan, among City Council's Strategic Plan goals is Goal #2: *A City That Respects, Protects And Enhances The Natural Environment*. This goal identifies six objectives aimed at approaching new development and redevelopment and public facilities in an environmentally sensitive way; increasing the amount of open space, recreation space and park acreage per resident; protecting and expanding the city's overall tree canopy; improving the appearance of gateways, entrances and corridors, increasing the number of people who travel in the City by mass transit, bicycling or walking and become less auto dependent and; improving the quality of air and water in Alexandria. It is also noted that among the management actions identified in the Strategic Plan for this goal is the Four Mile Run Restoration Master Plan (*Goal 2, Action 10, Alexandria City Council Strategic Plan*).

The Four Mile Run Restoration Master Plan fully supports and encourages environmental restoration improvements for Four Mile Run that achieve City Council's goal of respecting, protecting, and enhancing the natural environment. Rigorous study of existing in-stream and near-stream conditions of Four Mile Run underpin the many environmental and habitat restoration improvements, such as the partial removal of floodwalls, gabions, and riprap and replacement with environmentally sensitive bank stabilization methods. The inclusion of sand bars, riparian edge plantings, enhancements to the existing wetlands at Four Mile Run Park, daylighting of streams, removal of invasive species and replacement with native plants, will all contribute to restoring the natural stream environment.

With regard to new development or redevelopment of properties that abut Four Mile Run, the Master Plan identifies general planning principles for building form, orientation and set backs to ensure that new construction engages and addresses Four Mile Run and promotes public accessibility and visibility to the stream. The Master Plan also includes a variety of stormwater management techniques to control run-off, promotes sustainable building and design, and encourages environmental stewardship of the stream by residents and businesses.

The Master Plan also fully supports Council's desire to increase the number of people who walk, bicycle or take public transportation rather than rely upon their automobile. The Master Plan recommends the establishment of new walking and bicycle trails, with non-vehicular connections across Four Mile Run, to increase the connectivity between the City and Arlington County. The community strongly desires these connections to satisfy their recreational and non-recreational needs, and staff heard consistently that people want to be able to walk or bicycle safely from their neighborhoods to Four Mile Run and beyond. The community also expressed a desire to be able to access Four Mile Run by public transportation, especially on the weekends and holidays when people have more time for leisure. The Four Mile Run Restoration Master Plan is consistent with Council's express goal of respecting, protecting and enhancing the natural environment.

## **CONCLUSION**

The Four Mile Run restoration Master Plan presents a plan and strategy for the short-term (demonstration projects) and the long-term future of the near-stream and levee corridor that implements stream restoration, flood protection, aesthetic improvements, viewshed opportunities, green technology, recreational and urban life opportunities to create a balance between the natural elements of a restored corridor and urban activity areas. All this, in order to generate a lively, safe and well-used public resource which both the City of Alexandria and Arlington County can look upon as the front door to both communities.

## **STAFF:**

Mark Jinks, Deputy City Manager, City Managers Office  
Kirk Kincannon, Director, Parks, Recreation and Cultural Activities  
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